

REMARKS

Claims 1, 2, 6 and 58 – 67 are in the case. In response to a requirement to restrict claims 1,2,6 and 58-66 are withdrawn. Thus claim 67 is under consideration here, further limited by the election of SEQ ID NO:77 and 78.

Claim 67 stands rejected under 35 USC § 112, 103 and the judicially created doctrine of double patenting.

No new matter has been added

Specification

The specification is objected to for informalities. Specifically:
Page 68: statements of nucleic acid fragment lengths are too short to encode the stated amino acid length.

The specification has been amended to correct these obvious typographical errors. A substitute specification is submitted herewith containing the corrections where additions are shown by underline and deletions by strike through.

Claim Objections

Claim 67 is objected as it is drawn to non-elected subject matter. SEQ ID NO:71 is not under consideration in this application.

The non-elected subject matter has been removed.

Claim Rejections – 35 USC § 112

Claim 67 is rejected under 35 USC § 112, first paragraph for failing to comply with the written description requirement. The examiner argues that the claims are so broad so as to encompass any IntN comprising the motifs of SEQ ID NO:77 or 78 whereas the specification describes only IntN isolated from *Synechocystis* containing SEQ ID NO:77 or 78.

The claim has been amended to recite the limitation that the IntN be isolated from *Synechocystis*.

Claim 67 is rejected under 35 USC § 112, first paragraph for lack of enablement. The examiner finds the claim enabled for the combination of IntN and IntC from Ssp dnaE of *Synechocystis* but not for all IntN's comprising SEQ ID NO:77 and 78.

The claim has been amended to include the limitation that the IntC also be isolated from a *Synechocystis*.

In view of the above claim amendments applicants submit that claim 67 fully complies with 35 USC § 112 and respectfully request withdrawal of these rejections.

Claim Rejections – 35 USC § 103

The examiner notes that the application names joint inventors and presumes that the subject matter of the claims was commonly owned at the time the inventions were made. The examiner's presumption is correct.

Claim 67 is rejected under 35 USC § 103(a) as being unpatentable over Chen et al (2001, *Gene*, 263:39-48, hereinafter "Chen") in view of Wu et al (1998, *PNAS*, 95:9226-9231, hereinafter "Wu") and Whitelam et al (1993, *Biotechnol. Genet. Eng. Rev.* 11:1-29, hereinafter "Whitelam").

Chen is cited for teaching an artificially split 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) gene (derived from *Salmonella typhimurium*) could be reassembled as a functional enzyme via intein *trans*-splicing. Chen does not teach the use of a split intein in plants and does not teach the specific sequences of SEQ ID NO:77 and 78 as recited in the present specification.

Wu is cited for the teaching a split intein derived from the DnaE protein of *Synechocystis* having N and C-terminal halves and having transplicing activity in *E. coli* where the N terminal portion comprises SEQ ID NO: 77 and 78 of the present application. Wu does not teach the use of the split intein in plants.

Whitelam is cited for teaching transformation and protein expression methods in plants.

The examiner argues that the teachings of Wu and Chen encompass all the elements of the claimed invention with the exception of the transformation and expression of the present genetic constructs in plants, an element supplied by the teaching of Whitelam. Applicants respectfully traverse.

It is well settled that in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants submit that the cited reference do not render the present invention obvious as not all the elements of the claimed invention are found in the cited references, specifically the references do not teach the use of a split intein for transplicing proteins in plants. At best the combination of the cited references may suggest that the present invention was obvious to try, which of course is not the standard under 35 USC § 103.

As the examiner notes, none of the cited reference teaches the use of the claimed technology in plants. Chen suggests that the technology ultimately would be

useful to contain herbicide resistant genes in plants by expressing separate DNA fragments in different locations. However, Chen does not actually describe how this could be accomplished in a reproducible fashion. Similarly Wu is silent with respect to methods by which inteins may be used in plants for transplicing proteins. Wu's disclosure is limited to the model system of *E. coli*. Applicants are the first to move the teaching from the theoretical to the practical and actually demonstrate workable intein mediated transplicing in plants. It is notable that, although Chen and Wu appear to suggest that one of the primary utilities of the described technology is to effect transplicing of proteins in plants, neither author has subsequently published on a method for accomplishing the same, suggesting that the skilled person would not find implementation of this suggestion obvious. It is well settled that a suggestion in the art to "...explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it." [*In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988)] is not the standard to be met for a prima facie case of obviousness.

Because all of the claimed elements are not found in the combined references and because "obvious to try" is not the standard for rejection under 35 USC § 103, Applicants submit that the combination of the cited references does not support a prima facie rejection under 35 USC § 103 and respectfully request withdrawal of this rejection.

Double Patenting

Claim 67 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatenable over claims 23-31 of co-pending application USSN 10/356088 in view of Chen et al (*supra*).

It is well settled that a timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) is sufficient to remove this rejection. While not intending to agree with the examiner's rationale concerning this rejection, applicants have filed herewith a terminal disclaimer, disclaiming the terminal portion of any patent granted on the instant application that would extend beyond the statutory term of commonly owned 10/356088.

Should there be any fee due in connection with the filing of this Response To Restriction Requirement please charge such fee to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Neil Feltham", written in a cursive style.

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